UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

September 24, 2015

Donald Gronstal, BRAC Environmental Coordinator
Air Force Civil Engineering Center (AFCEC/CIBW)
3411 Olson Street
McClellan, CA 95652-1003

Re: **EPA Review of the Technical Memorandum for the Fall 2015 Basewide Groundwater Sampling Event, Former George Air Force Base, California September 2015**

Dear Mr. Gronstal:

This letter provides the Air Force (AF) with the US Environmental Protection Agency's (EPA) EPA Review of the Technical Memorandum for the Fall 2015 Basewide Groundwater Sampling Event, Former George Air Force Base, California September 2015.

Please contact me at 415-972-3289 if you have questions or if a conference call is necessary.

Sincerely,

Mary T. Aycock

Mary T. Aycock
Remedial Project Manager
Air Force and DOE Section (SFD-8-1)

cc: Linda Stone/RWQCB

EPA Review of the Technical Memorandum for the Fall 2015 Basewide Groundwater Sampling Event, Former George Air Force Base, California, September 2015

GENERAL COMMENTS

1. The Technical Memorandum for the Fall 2015 Basewide Groundwater Sampling Event, Former George Air Force Base, California, dated September 14, 2015 (the Fall 2015 TM) proposes wells NZ-55, NZ-82, and NZ-83 for sampling in October 2015; however, the Final 2014 Basewide Annual Monitoring and Operations Report for CERCLA and Non-CERCLA Sites (the 2014 BAMOR) indicated that wells NZ-55, NZ-82, and NZ-83 were not sampled due to the presence of physical obstructions in the wells. Discussions at the September 23, 2015 Base Closure Team (BCT) meeting indicated that the physical obstructions are pumps and that these monitoring wells were converted to extraction wells to address hot spots at these locations. Please indicate in the Fall 2015 TM that the physical obstructions are pumps and discuss how these hot spots are being evaluated or include alternative monitoring locations in the October 2015 Sampling Event. Table 1 of the TM will be modified to include this information.

2. Site CG070 well NZ-100 is not included for sampling in October 2015, but the following lines of evidence suggest that this well should be sampled.

    a. Well NZ-100 is screened from 160 to 180 feet below top of casing (ft btoc) and is located downgradient of well EW-6, which is screened from 160 to 230 ft btoc. Wells NZ-138 and NZ-39 were installed near well EW-6 to provide better depth-specific information in the area of EW-6. NZ-138 is screened from 130 to 150 ft btoc and NZ-139 from 225-235 ft btoc. However, there is no well screened in the middle interval of EW-6. Since NZ-100 is screened in the middle interval and located downgradient of EW-6, this well could potentially provide data from the middle interval.

    b. The 2014 BAMOR indicated on page 4-6 that the 7.6 micrograms per liter (ug/L) trichloroethene (TCE) detection in NZ-72 was the first detection in that well in 17 years, and that it will be included in the next round of sampling at OU1 to assess whether the result is anomalous or indicates plume migration. NZ-72 is included for sampling in October 2015. However, based on 2014 BAMOR Figure 4-2 (TCE concentrations in the Lower Aquifer, April and October 2014), well NZ-100 is located between wells EW-6 (the center of an upgradient TCE plume to the south) and NZ-72, but this well was not sampled in 2014. If plume migration is occurring, the likely migration pathway is northward from the plume centered on EW-6 to the south, and well NZ-100 could be useful in assessing whether the plume has migrated from EW-6 to NZ-72.

    c. Although it is noted that concentrations of TCE in NZ-100 have been below 5 ug/L since 2001, the sudden detection of 7.6 ug/L TCE in nearby, downgradient well NZ-72 after 17 years of no detections justifies collection of a sample from well NZ-100 in October 2015.

    Please add NZ-100 to the October 2015 sampling event or provide the rationale for not sampling this well in October 2015 as it relates to the points above. Well NZ-100 will be added to the Fall 2015 sampling list as a one-time event. Note that all wells will be re-evaluated during the Master Well List Sampling and Optimization meeting proposed for January 2016.

3. The Final 2014 BAMOR indicates on page 4-6 that the "vertical stability of the Lower Aquifer TCE plume has been assessed by a review of TCE concentrations in cluster wells NZ-127b, NZ-127c, NZ-128b, NZ-128c, NZ-129b, NZ-129c, NZ-131b, NZ-131c, NZ-134b, NZ-134c, NZ-135b, NZ-135c, and new wells NZ-138, NZ-139." However wells NZ-128b, NZ-128c, NZ-131b,

NZ-131c, NZ-134b, NZ-134c, NZ-135b, NZ-135c are not included for sampling in October 2015. Please clarify why these wells are not being sampled and how vertical stability will be assessed without this data. Alternatively, please include these wells in the October 2015 sampling event. Historical results indicate that TCE is non-detect for the subject wells going back to their installation. The current-proposed GC070 well network is based on the results of the OU-1 Workshop previously held in August 2014. All wells will be re-evaluated during the Master Well List Sampling and Optimization meeting proposed for January 2016.

4. In the supplemental table "Wells Proposed for Sampling – October 2014, OU1, Former George AFB," wells that were listed for water-level measurement only (indicated by green shading) are not included in the Fall 2015 TM. FT-01 and FT-02 are two examples of wells included for water-level measurement only. Please verify that water levels will be measured in these wells again in October 2015. The subject wells will be included in well gauging activities during the Fall 2015 event.

5. Site ST067b well MW-150 had a benzene concentration of 9,000 ug/L in April 2014 and this well was not sampled in October 2014. The 2014 BAMOR also recommends that semiannual sampling of groundwater monitoring wells be conducted in 2015 (see 4th bullet on page 13-13); however, this well is not proposed for sampling in October 2015. Considering that this well has the highest benzene concentration at the site, and that benzene concentrations continue to show an increasing trend in this well (see last bullet on page 13-12), please revise the Fall 2015 TM to include sampling of well MW-150. MW-150 will be added to the fall sampling schedule.

6. The 2014 BAMOR lists monitoring wells used in investigations conducted by the Air Force to fully characterize the groundwater beneath Site ST067b (see page 13-3); however, one of these wells, MW-135, does not appear to be included in the October 2015 sampling event, and it does not appear to have been sampled in the April 2015 event. Please clarify why this well is not planned for sampling in 2015 and if applicable, include this well in the October 2015 event. Well MW-135 (screened from 150 to 165 feet bgs) proved to be a dry well and was replaced in the monitoring well network by well MW-137 (screened from 160 to 185 feet bgs). MW-137 is located approximately 58 feet northeast of well MW-135.

7. Table 1, Monitoring Wells Summary, Fall 2015 Basewide Groundwater Monitoring Event, provided at the BCT meeting indicates several different approaches to pump placement (middle of column; 5 feet below water table, or feet below top of casing). Please clarify each approach or reference a document where this information is discussed. As Mark Unruh explained during the recent BCT meeting in September, most of the pump placement rationale is based on depths previously used/established by MWH. During the assembly of each semi-annual TM, individual well pump placement is evaluated based on previous GW elevations. Adjustments are then made if it is determined that the pump placement is not optimally positioned. Moving forward, pump placement depths will be evaluated for basewide wells during the Master Well List Optimization meeting proposed for January 2016.

SPECIFIC COMMENTS

1. **SS030, Page 2:** It is unclear whether groundwater samples will be collected from wells at this site if free product is present. The text for site ST067b, where free product is present, indicates that groundwater samples would not be collected if free product is observed. Please revise the Fall 2015 TM to clarify whether samples will be collected from Site SS030 wells if free product is present. The text for SS030 will be modified accordingly.

2. **Conclusion, Page 3:** The text indicates that 144 wells will be sampled and analysis will include 144 volatile organic compound (VOC) samples, so it is unclear if quality assurance (QA) samples are included (i.e. duplicates, trip blanks, etc.). Please ensure that the appropriate number and type of QA samples are collected. QA samples will be analyzed in addition to the 144 sample mentioned above. All gw sampling is performed in accordance with the approved UFP-QAPP. A full data quality analysis is performed for each semi-annual event and included in the Annual Monitoring Report.

3. **Table 1, Monitoring Well Summary:** The site associated with well MW-136 is listed as ST067b; however, site OT069 should also be included for this well. The 2014 BAMOR states that tetrachloroethene (PCE) concentrations have historically exceeded the maximum contaminant level (MCL) in MW-136, and that this well is used to monitor solvent detections in the area. Therefore the well was included in the discussion for Site OT069 (see page 7-4 of the 2014 BAMOR). Please revise Table 1 to include Site OT069 as a well associated with MW-136. As described in Section 7.4 of the BAMOR, the Air Force monitors and reports on well MW-136 as part of Section 7.0 in the BAMOR, but it is located between sites ST067b and OT071 and is not considered part of Site OT069.

END OF COMMENTS